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125 SUMMER STREET
BOSTON, MA 02110-1618

EXAMINER

BARON, HENRY

ART UNIT	PAPER NUMBER
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2616

MAIL DATE	DELIVERY MODE
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02/05/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/996,102

Applicant(s)

MOLUF, ALLAN

Examiner

Henry Baron

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 9-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTIONS

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
2. Claims 1-8, drawn to adaptive communication techniques for information carried in plural channels, classified in class 370, subclass 465.
3. Claims 9-12, drawn to using synchronization information contained in a frame, classified in class 725, subclass 151.
4. Inventions i and ii are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because adaptive communication techniques for information carried in plural channels does not uniquely require synchronization of a local clock at the receiver. The subcombination has separate utility since synthesizing a stable clock from a local clock and a data stream method can be practiced in generic wireless communications.
5. The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

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6. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

7. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

8. The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

9. Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103 (a) of the other invention.

10. During a telephone conversation with John Conway on January 29th, 2008 a provisional election was made without traverse to prosecute the invention of i claims 1 -8. Affirmation of this election must be made by applicant in replying to this Office action. Claims 9 – 12 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- a. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a

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whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gringeri (U.S. Patent 6108382) in view of Tsai, et al (U.S. Patent 6,529,552).

12. In consideration of claims 1 and 5, Gringeri teaches of a method for multiplexing compressed video input data streams and a multiplexer for combining a plurality of compressed video input data streams into an output data stream, each input data stream divided into video frames, into an output data stream with low latency, the method comprised of receiving each input data stream; providing an input buffer, the buffer capable of holding at least a maximum-size video frame for each input data stream; (4: [0050+] read an ATM network can efficiently allocate network bandwidth and switch buffer space to a number of variable bit rate video streams. By maximizing the utilization of the allocated network bandwidth and switch buffer space, the network can statistically multiplex a larger number of variables bit rate video streams over VBR connections for the same video quality.)

13. However Gringeri is silent with regards to disclosing when a given video frame in a given input data stream is larger than a threshold size, dividing the given video frame into at least a first part and a second part and rescheduling at least one part of the given video frame for transmission in the output data stream earlier than the corresponding frame time in the output data stream.

14. Tsai teaches of a method for multiplexing compressed video input data streams where a given video frame in a given input data stream is larger than a threshold size, dividing the given video frame into at least a first part and a second part and rescheduling at least one part of the given video frame for transmission in the output data stream earlier than the corresponding frame time in the output data stream. (5: [0010] read FIG. 2 illustrates the same series of coded bits re-distributed over the same frames 18a-18g in time as shown in FIG. 1. The re-distribution considers utilizing skipped frames in the variable rate bitstream to place bits from neighboring frames into the bitstream prior to or otherwise adjacent to their actual decode times. This method may be used with storage and delivery of content which has been

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encoded off-line. The information may be stored in the bitstream in such a way that it can be delivered and decoded over a constant bit-rate channel with constant quality. This capability may come from the storage of some bits generated from future frames being stored in special user-defined data fields in prior or otherwise adjacent frames. For example, in FIG. 2, excess bits 20 associated with Frame 5 (18e) are shown with bits 16d tagged from Frame 4 (18d). Therefore, the excess bits 20 representing the frame at time $t+1$ (where, for example, t =Frame 4 (18e)), may be transmitted along with the bits 16d associated with the frame at time t (Frame 4 (18d)) because excess bandwidth may be available for transmission for that frame.)

15. It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the compressed video multiplexing data streams teachings of Gringeri with the rescheduled frame transmission teachings of Tsai.

16. With such a modification, the transmit channel can be optimally used by redistributing bits from over to under utilized frame slots, allowing the stream to be transmitted with low latency.

17. In consideration of claims 2 and 6, Gringeri teaches of a method for multiplexing compressed video input data streams, each input data stream divided into video frames, into an output data stream with low latency but does not teach of a predetermined threshold size.

18. Tsai teaches a method where the threshold size is predetermined. (Figure 2 and 5: [0008] read [a] bit budget per frame 14 i.e. threshold, may be illustrated that may be constant in a constant capacity network.).

19. It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the compressed video multiplexing data streams teachings of Gringeri with the predetermined threshold size teachings of Tsai.

20. With this modification, once a video frame size exceeds a predetermined threshold, it can be partitioned into parts and parts can be rescheduled for transmission with an earlier, smaller video frame.

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In this manner, the bursts of large video frames are regulated by redistribution allowing the full channel capacity to be used effectively.

21. In consideration of claims 3 and 7, Gringeri teaches of a method for multiplexing compressed video input data streams, each input data stream divided into video frames, into an output data stream with low latency but does not teach of a adaptively determining the threshold size.

22. Tsai teaches a method where the threshold size is adaptively determined. (Figure 4 and 6:[0015] read [a]s illustrated in FIG. 4, a flowchart 70 of a method for managing bit expenditures associated with a digitally compressed video bitstream for variable capacity networks may be provided. The method may include a step 72 that may analyze users requested quality of service (QoS) including temporal and spatial visual quality measures, network capacity and availability, enhanced feature compliance, such as, for example, scalability, and number of users supported by the network. A step 74 may manage the temporal frame rate of a coded video sequence based on the users' requested temporal QoS, network capacity and availability, and the enhanced feature compliance and number of users supported by the network. Next, a step 76 may change the quantization of the residual frames i.e. adaptive threshold, based on the users, requested spatial QoS, network capacity and availability, and the enhanced feature compliance and number of users supported by the network.).

23. It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the compressed video multiplexing data streams teachings of Gringeri with the adaptive threshold size teachings of Tsai.

24. With this modification, once a video frame size exceeds an adaptively determined threshold, it can be partitioned into parts and parts can be rescheduled for transmission with an earlier, smaller video frame. In this manner, the bursts of large video frames are regulated by redistribution allowing the full channel capacity to be used effectively. By adaptively determining the threshold the channel loading can be matched with the bandwidth.

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25. With regards to claims 4 and 8, Gringeri teaches wherein at least one of the input data streams is an MPEG-encoded video stream; (Abstract read [a] method and system for transmitting a video stream in an asynchronous transfer mode (ATM) network comprises steps of encoding the video into an MPEG-2 variable bit rate video stream, shaping the encoded variable bit rate video stream to conform to the traffic contract parameters for a Variable Bit Rate (VBR) connection in the network, and transmitting the shaped variable bit rate video stream on the VBR connection based on the traffic contract parameters..)

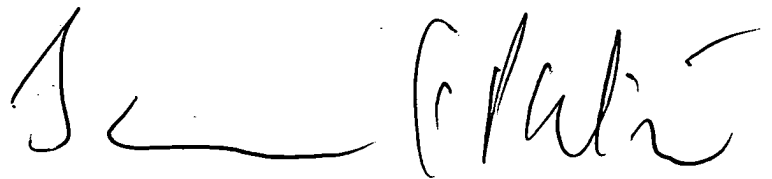
Conclusion

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry Baron whose telephone number is (571) 270-1748. The examiner can normally be reached on 7:30 AM to 5:00 PM E.S.T. Monday to Friday.

27. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

28. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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